



Drainage Design Report

Flow+

v12.0

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Network

Filename	25032_FELBRIDGE_SW NETWORK 1.pfd
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Last analysed	09/07/2025 11:24:19
Report produced on	09/07/2025 11:26:50

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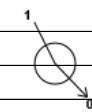
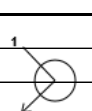
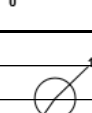
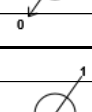
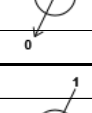
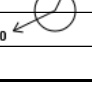
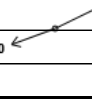
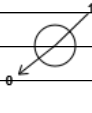
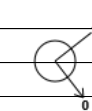
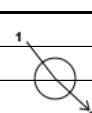
Rainfall Methodology	FEH-22
Return Period (years)	2
Additional Flow (%)	0
CV	1.000
Time of Entry (mins)	5.00
Maximum Time of Concentration (mins)	30.00
Maximum Rainfall (mm/hr)	50.0
Minimum Velocity (m/s)	1.00
Connection Type	Level Soffits
Minimum Backdrop Height (m)	9.000
Preferred Cover Depth (m)	1.200
Include Intermediate Ground	Yes
Enforce best practice design rules	Yes

	Name	Area (ha)	T of E (mins)	Add Inflow (l/s)	Cover Level (m)	Node Type	Manhole Type	Diameter (mm)	Width (mm)	Sump (m)	Easting (m)	Northing (m)	Depth (m)	Notes
✓	S1	0.081	5.00		88.675	Manhole	Adoptable	1200			536575.860	139469.190	1.425	Auto-design is off
✓	S2	0.025	5.00		88.125	Manhole	Adoptable	1200			536596.404	139428.418	1.500	Auto-design is off
✓	S3	0.033	5.00		87.934	Manhole	Adoptable	1350			536607.983	139416.742	1.650	Auto-design is off
✓	S4	0.072	5.00		87.745	Manhole	Adoptable	1350			536616.914	139400.306	1.650	Auto-design is off
✓	S11	0.101	5.00		88.532	Manhole	Adoptable	1200			536561.925	139325.013	1.556	Auto-design is off
✓	S12	0.036	5.00		88.297	Manhole	Adoptable	1350			536578.809	139329.289	1.650	Auto-design is off
✓	S27	0.175	5.00		88.018	Manhole	Adoptable	1350			536591.703	139345.025	2.018	Auto-design is off
✓	S6	0.092	5.00		87.493	Manhole	Adoptable	1500			536619.451	139378.732	1.725	Auto-design is off
✓	S7	0.132	5.00		86.875	Manhole	Adoptable	1500			536637.450	139362.453	1.725	Auto-design is off
✓	S8	0.014	5.00		86.385	Manhole	Adoptable	1500			536646.485	139344.509	1.800	Auto-design is off
✓	S9	0.044	5.00		86.049	Manhole	Adoptable	1500			536656.498	139334.146	1.619	Auto-design is off
✓	S10	0.046	5.00		86.000	Manhole	Adoptable	1500			536632.480	139311.096	1.637	Auto-design is off
✓	S24	0.071	5.00		86.000	Manhole	Adoptable	1500			536619.824	139293.110	1.681	Auto-design is off
✓	S25	0.000	5.00		86.000	Manhole	Adoptable	1500			536606.202	139265.299	1.750	Auto-design is off
✓	S26-HW	0.000	5.00		86.000	Junction					536592.933	139258.884	1.775	Auto-design is off
✓	S13	0.207	5.00		88.004	Manhole	Adoptable	1200			536484.152	139329.216	1.500	Auto-design is off
✓	S14	0.029	5.00		87.320	Manhole	Adoptable	1350			536441.075	139295.435	1.575	Auto-design is off
✓	S15	0.115	5.00		86.691	Manhole	Adoptable	1350			536461.638	139268.930	1.650	Auto-design is off
✓	S16	0.053	5.00		85.824	Manhole	Adoptable	1500			536497.096	139236.324	1.403	Auto-design is off
✓	S17-HW	0.000	5.00		86.000	Junction					536529.041	139246.758	1.775	Auto-design is off
✓	S21	0.128	5.00		87.629	Manhole	Adoptable	1200			536516.400	139292.423	1.425	Auto-design is off
✓	S22	0.094	5.00		86.890	Manhole	Adoptable	1200			536531.044	139273.546	1.500	Auto-design is off
✓	S23-HW	0.000	5.00		86.299	Junction					536542.435	139258.159	2.074	Auto-design is off
✓	S18-HW	0.000	5.00		86.000	Junction					536582.623	139255.123	2.000	Auto-design is off
✓	S19-FC	0.000			86.000	Manhole	Adoptable	3000			536588.779	139249.216	2.050	Auto-design is off
✓	S20-OF	0.000			84.500	Junction					536593.106	139236.806	0.700	
✓	S28		5.00		88.400	Manhole	Adoptable	1350			536501.740	139346.140	1.425	Auto-design is off
✓	S29		5.00		88.800	Manhole	Adoptable	1350			536548.470	139337.490	1.425	Auto-design is off

	Name	US Node	DS Node	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Minimum Depth (m)	Maximum Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)	Notes
✓	1.000	S1	S2	1.209	48.1	14.6	1.200	1.200	1.200	1.200	0.081	0.0	85	1.063	Auto-design is off
✓	1.001	S2	S3	1.695	119.8	19.2	1.200	1.200	1.200	1.200	0.106	0.0	81	1.251	Auto-design is off
✓	1.002	S3	S4	2.043	325.0	25.1	1.200	1.200	1.200	1.200	0.139	0.0	84	1.233	Auto-design is off
✓	1.003	S4	S6	2.190	348.4	38.1	1.200	1.200	1.200	1.200	0.211	0.0	100	1.460	Auto-design is off
✓	2.000	S11	S12	1.007	40.0	18.3	1.331	1.200	1.200	1.331	0.101	0.0	107	0.985	Auto-design is off
?	2.001	S12	S27	3.635	578.2	24.8	1.200	1.568	1.200	1.568	0.137	0.0	63	1.852	Auto-design is off Velocity is more than 3 m/s
✓	2.002	S27	S6	1.214	193.1	56.4	1.568	1.200	1.200	1.568	0.312	0.0	166	1.058	Auto-design is off
?	1.004	S6	S7	3.582	775.3	110.2	1.200	1.200	1.200	1.200	0.615	0.0	133	2.572	Auto-design is off Velocity is more than 3 m/s
?	1.005	S7	S8	3.505	758.7	133.1	1.200	1.200	1.200	1.200	0.747	0.0	147	2.665	Auto-design is off Velocity is more than 3 m/s
?	1.006	S8	S9	2.526	714.2	134.8	1.200	1.019	1.019	1.200	0.761	0.0	175	1.963	Auto-design is off Downstream Depth is less than the specified minimum
?	1.007	S9	S10	1.086	307.0	91.9	1.019	1.037	1.019	1.037	0.805	0.0	224	0.954	Auto-design is off Upstream Depth is less than the specified minimum Downstream Depth is less than the specified minimum
?	1.008	S10	S24	1.077	304.6	94.4	1.037	1.081	1.037	1.081	0.851	0.0	228	0.954	Auto-design is off Upstream Depth is less than the specified minimum Downstream Depth is less than the specified minimum
?	1.009	S24	S25	1.143	323.1	99.0	1.081	1.150	1.081	1.150	0.922	0.0	227	1.010	Auto-design is off Upstream Depth is less than the specified minimum Downstream Depth is less than the specified minimum
?	1.010	S25	S26-HW	1.090	308.1	99.6	1.150	1.175	1.150	1.175	0.922	0.0	234	0.977	Auto-design is off Upstream Depth is less than the specified minimum Downstream Depth is less than the specified minimum
?	1.011	S26-HW	S18-HW	2.692	761.1	97.6	1.175	1.400	1.175	1.400	0.922	0.0	144	1.880	Auto-design is off Upstream Depth is less than the specified minimum
✓	3.000	S13	S14	1.759	124.3	37.4	1.200	1.200	1.200	1.200	0.207	0.0	113	1.547	Auto-design is off
✓	3.001	S14	S15	2.485	274.5	42.6	1.200	1.200	1.200	1.200	0.236	0.0	99	1.825	Auto-design is off
?	3.002	S15	S16	2.163	344.0	61.6	1.200	0.878	0.878	1.200	0.351	0.0	128	1.652	Auto-design is off Downstream Depth is less than the specified minimum
?	3.003	S16	S17-HW	1.630	352.8	69.8	0.878	1.250	0.878	1.250	0.404	0.0	157	1.280	Auto-design is off Upstream Depth is less than the specified minimum
?	3.004	S17-HW	S18-HW	1.691	478.2	44.7	1.175	1.400	1.175	1.400	0.404	0.0	122	1.077	Auto-design is off Upstream Depth is less than the specified minimum
✓	4.000	S21	S22	2.309	91.8	23.1	1.200	1.200	1.200	1.200	0.128	0.0	77	1.934	Auto-design is off
?	4.001	S22	S23-HW	3.806	269.0	40.1	1.200	1.474	1.200	1.474	0.222	0.0	78	2.757	Auto-design is off Velocity is more than 3 m/s
✓	4.002	S23-HW	S18-HW	1.973	557.9	28.0	1.474	1.400	1.400	1.474	0.222	0.0	90	1.052	Auto-design is off
✓	1.012	S18-HW	S19-FC	1.378	389.7	163.4	1.400	1.450	1.400	1.450	1.548	0.0	270	1.320	Auto-design is off
?	1.013	S19-FC	S20-OF	1.605	113.4	0.0	1.750	0.400	0.400	1.750	1.548	0.0	0	0.000	Auto-design is off Downstream Depth is less than the specified minimum
✓	5.000	S28	S13	1.668	66.3	0.0	1.200	1.200	1.200	1.200	0.000	0.0	0	0.000	Auto-design is off
✓	6.000	S29	S11	1.934	76.9	0.0	1.200	1.331	1.200	1.331	0.000	0.0	0	0.000	Auto-design is off

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)	US Node	Dia (mm)	Width (mm)	Sump (m)	Node Type	MH Type	DS Node	Dia (mm)	Width (mm)	Sump (m)	Node Type	MH Type
1.000	64.143	116.6	225	Circular	88.675	87.250	1.200	88.125	86.700	1.200	S1	1200			Manhole	Adoptable	S2	1200			Manhole	Adoptable
1.001	16.444	86.1	300	Circular	88.125	86.625	1.200	87.934	86.434	1.200	S2	1200			Manhole	Adoptable	S3	1350			Manhole	Adoptable
1.002	18.706	99.0	450	Circular	87.934	86.284	1.200	87.745	86.095	1.200	S3	1350			Manhole	Adoptable	S4	1350			Manhole	Adoptable
1.003	21.723	86.2	450	Circular	87.745	86.095	1.200	87.493	85.843	1.200	S4	1350			Manhole	Adoptable	S6	1500			Manhole	Adoptable
2.000	17.417	167.5	225	Circular	88.532	86.976	1.331	88.297	86.872	1.200	S11	1200			Manhole	Adoptable	S12	1350			Manhole	Adoptable
2.001	20.344	31.4	450	Circular	88.297	86.647	1.200	88.018	86.000	1.568	S12	1350			Manhole	Adoptable	S27	1350			Manhole	Adoptable
2.002	43.659	278.1	450	Circular	88.018	86.000	1.568	87.493	85.843	1.200	S27	1350			Manhole	Adoptable	S6	1500			Manhole	Adoptable
1.004	24.269	39.3	525	Circular	87.493	85.768	1.200	86.875	85.150	1.200	S6	1500			Manhole	Adoptable	S7	1500			Manhole	Adoptable
1.005	20.090	41.0	525	Circular	86.875	85.150	1.200	86.385	84.660	1.200	S7	1500			Manhole	Adoptable	S8	1500			Manhole	Adoptable
1.006	14.410	93.0	600	Circular	86.385	84.585	1.200	86.049	84.430	1.019	S8	1500			Manhole	Adoptable	S9	1500			Manhole	Adoptable
1.007	33.259	496.4	600	Circular	86.049	84.430	1.019	86.000	84.363	1.037	S9	1500			Manhole	Adoptable	S10	1500			Manhole	Adoptable
1.008	22.185	504.2	600	Circular	86.000	84.363	1.037	86.000	84.319	1.081	S10	1500			Manhole	Adoptable	S24	1500			Manhole	Adoptable
1.009	30.968	448.8	600	Circular	86.000	84.319	1.081	86.000	84.250	1.150	S24	1500			Manhole	Adoptable	S25	1500			Manhole	Adoptable
1.010	12.323	492.9	600	Circular	86.000	84.250	1.150	86.000	84.225	1.175	S25	1500			Manhole	Adoptable	S26-HW				Junction	
3.000	54.743	80.0	300	Circular	88.004	86.504	1.200	87.320	85.820	1.200	S13	1200			Manhole	Adoptable	S14	1350			Manhole	Adoptable
3.001	33.546	53.3	375	Circular	87.320	85.745	1.200	86.691	85.116	1.200	S14	1350			Manhole	Adoptable	S15	1350			Manhole	Adoptable
3.002	48.171	88.4	450	Circular	86.691	85.041	1.200	85.824	84.496	0.878	S15	1350			Manhole	Adoptable	S16	1500			Manhole	Adoptable
4.000	23.891	32.3	225	Circular	87.629	86.204	1.200	86.890	85.465	1.200	S21	1200			Manhole	Adoptable	S22	1200			Manhole	Adoptable
4.001	14.896	17.2	300	Circular	86.890	85.390	1.200	86.299	84.525	1.474	S22	1200			Manhole	Adoptable	S23-HW				Junction	
1.012	15.485	309.7	600	Circular	86.000	84.000	1.400	86.000	83.950	1.450	S18-HW				Junction		S19-FC	3000			Manhole	Adoptable
1.013	14.397	96.0	300	Circular	86.000	83.950	1.750	84.500	83.800	0.400	S19-FC	3000			Manhole	Adoptable	S20-OF				Junction	
5.000	24.408	61.6	225	Circular	88.400	86.975	1.200	88.004	86.579	1.200	S28	1350			Manhole	Adoptable	S13	1200			Manhole	Adoptable
6.000	18.350	46.0	225	Circular	88.800	87.375	1.200	88.532	86.976	1.331	S29	1350			Manhole	Adoptable	S11	1200			Manhole	Adoptable
	607.827																					

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Width (mm)	Sump (m)	Node Type	MH Type	Connections		Link	IL (m)	Dia (mm)	Link Type
S1	536575.860	139469.190	88.675	1.425	1200			Manhole	Adoptable						
											0	1.000	87.250	225	Circular
S2	536596.404	139428.418	88.125	1.500	1200			Manhole	Adoptable		1	1.000	86.700	225	Circular
											0	1.001	86.625	300	Circular
S3	536607.983	139416.742	87.934	1.650	1350			Manhole	Adoptable		1	1.001	86.434	300	Circular
											0	1.002	86.284	450	Circular
S4	536616.914	139400.306	87.745	1.650	1350			Manhole	Adoptable		1	1.002	86.095	450	Circular
											0	1.003	86.095	450	Circular
S11	536561.925	139325.013	88.532	1.556	1200			Manhole	Adoptable		1	6.000	86.976	225	Circular
											0	2.000	86.976	225	Circular
S12	536578.809	139329.289	88.297	1.650	1350			Manhole	Adoptable		1	2.000	86.872	225	Circular
											0	2.001	86.647	450	Circular
S27	536591.703	139345.025	88.018	2.018	1350			Manhole	Adoptable		1	2.001	86.000	450	Circular
											0	2.002	86.000	450	Circular
S6	536619.451	139378.732	87.493	1.725	1500			Manhole	Adoptable		1	2.002	85.843	450	Circular
											2	1.003	85.843	450	Circular
											0	1.004	85.768	525	Circular
S7	536637.450	139362.453	86.875	1.725	1500			Manhole	Adoptable		1	1.004	85.150	525	Circular

											0	1.005	85.150	525	Circular
S8	536646.485	139344.509	86.385	1.800	1500			Manhole	Adoptable		1	1.005	84.660	525	Circular
											0	1.006	84.585	600	Circular
S9	536656.498	139334.146	86.049	1.619	1500			Manhole	Adoptable		1	1.006	84.430	600	Circular
											0	1.007	84.430	600	Circular
S10	536632.480	139311.096	86.000	1.637	1500			Manhole	Adoptable		1	1.007	84.363	600	Circular
											0	1.008	84.363	600	Circular
S24	536619.824	139293.110	86.000	1.681	1500			Manhole	Adoptable		1	1.008	84.319	600	Circular
											0	1.009	84.319	600	Circular
S25	536606.202	139265.299	86.000	1.750	1500			Manhole	Adoptable		1	1.009	84.250	600	Circular
											0	1.010	84.250	600	Circular
S26-HW	536592.933	139258.884	86.000	1.775				Junction			1	1.010	84.225	600	Circular
											0	1.011	84.225	600	Circular
S13	536484.152	139329.216	88.004	1.500	1200			Manhole	Adoptable		1	5.000	86.579	225	Circular
											0	3.000	86.504	300	Circular
S14	536441.075	139295.435	87.320	1.575	1350			Manhole	Adoptable		1	3.000	85.820	300	Circular
											0	3.001	85.745	375	Circular
S15	536461.638	139268.930	86.691	1.650	1350			Manhole	Adoptable		1	3.001	85.116	375	Circular
											0	3.002	85.041	450	Circular
S16	536497.096	139236.324	85.824	1.403	1500			Manhole	Adoptable		1	3.002	84.496	450	Circular

															
											0	3.003	84.421	525	Circular
S17-HW	536529.041	139246.758	86.000	1.775			Junction				1	3.003	84.225	525	Circular
															
											0	3.004	84.225	600	Circular
S21	536516.400	139292.423	87.629	1.425	1200		Manhole	Adoptable							
															
											0	4.000	86.204	225	Circular
S22	536531.044	139273.546	86.890	1.500	1200		Manhole	Adoptable			1	4.000	85.465	225	Circular
											0	4.001	85.390	300	Circular
S23-HW	536542.435	139258.159	86.299	2.074			Junction				1	4.001	84.525	300	Circular
											0	4.002	84.225	600	Circular
S18-HW	536582.623	139255.123	86.000	2.000			Junction				1	4.002	84.000	600	Circular
											2	3.004	84.000	600	Circular
											3	1.011	84.000	600	Circular
											0	1.012	84.000	600	Circular
S19-FC	536588.779	139249.216	86.000	2.050	3000		Manhole	Adoptable			1	1.012	83.950	600	Circular
											0	1.013	83.950	300	Circular
S20-OF	536593.106	139236.806	84.500	0.700			Junction				1	1.013	83.800	300	Circular
S28	536501.740	139346.140	88.400	1.425	1350		Manhole	Adoptable							
											0	5.000	86.975	225	Circular
S29	536548.470	139337.490	88.800	1.425	1350		Manhole	Adoptable							

											0	6.000	87.375	225	Circular

Rainfall Methodology	FEH-22		Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
Rainfall Events	Singular		2	0	0	0
Summer CV	1.000		30	0	0	0
Winter CV	1.000		100	45	0	0
Analysis Speed	Normal					
Skip Steady State	No					
Drain Down Time (mins)	1440					
Additional Storage (m³/ha)	0.0					
Starting Level (m)						
Storm Durations (mins)	15					
	30					
	60					
	120					
	180					
	240					
	360					
	480					
	600					
	720					
	960					
	1440					
	2160					
	2880					
	4320					
	5760					
	7200					
	8640					
	10080					
Check Discharge Rate(s)	No					
Check Discharge Volume	No					
100 year 360 minute (m³)						

Hydro-Brake®														
Node	Flap Valve	Online / Offline	Downstream Link	Replaces Downstream Link	Loop to Node	Invert Level (m)	Design Depth (m)	Design Flow (l/s)	Objective	Sump Available	Product Number	Min Outlet Diameter (m)	Min Node Diameter (mm)	Adjustable Inlet
S19-FC	No	Online		Yes		83.950	1.550	5.2	(HE) Minimise upstream storage	Yes	CTL-SHE-0099-5200-1550-5200	0.150	1200	Not available

<u>Depth/Area/Inf Area</u>									
Node	Base Inf Coefficient (m/hr)	Side Inf Coefficient (m/hr)	Safety Factor	Porosity	Invert Level (m)	Time to half empty (mins)	Depth (m)	Area (m ²)	Inf. Area (m ²)
S18-HW	0.00000	0.00000	2.0	1.00	84.000		0.000	894.4	0.0
							1.500	1644.6	0.0
							1.800	1805.6	0.0

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.74%																
Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link Event (Upstream Depth)	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S1	11	87.335	0.085	14.9	0.0962	0.0000	OK	15 minute summer	1.000	S2	14.4	1.060	0.299	0.8719	
15 minute summer	S2	11	86.709	0.084	18.8	0.0953	0.0000	OK	15 minute summer	1.001	S3	18.9	1.209	0.157	0.2563	
15 minute summer	S3	11	86.370	0.086	24.6	0.1230	0.0000	OK	15 minute summer	1.002	S4	24.7	1.017	0.076	0.4554	
15 minute summer	S4	11	86.199	0.104	37.3	0.1487	0.0000	OK	15 minute summer	1.003	S6	37.5	1.412	0.108	0.5770	
15 minute summer	S11	10	87.088	0.112	18.6	0.1270	0.0000	OK	15 minute summer	2.000	S12	18.2	0.960	0.454	0.3311	
15 minute summer	S12	10	86.710	0.063	24.8	0.0897	0.0000	OK	15 minute summer	2.001	S27	24.7	0.770	0.043	0.6948	
15 minute summer	S27	11	86.171	0.171	56.9	0.2442	0.0000	OK	15 minute summer	2.002	S6	56.2	1.053	0.291	2.3311	
15 minute summer	S6	11	85.905	0.137	109.9	0.2428	0.0000	OK	15 minute summer	1.004	S7	110.0	2.172	0.142	1.2315	
15 minute summer	S7	11	85.312	0.162	133.2	0.2863	0.0000	OK	15 minute summer	1.005	S8	133.5	2.528	0.176	1.0613	
15 minute summer	S8	11	84.799	0.214	136.0	0.3782	0.0000	OK	15 minute summer	1.006	S9	136.0	1.141	0.190	1.7349	
15 minute summer	S9	11	84.746	0.316	143.7	0.5590	0.0000	OK	15 minute summer	1.007	S10	141.6	0.932	0.461	5.0569	
15 minute summer	S10	12	84.687	0.324	149.6	0.5724	0.0000	OK	15 minute summer	1.008	S24	147.8	0.980	0.485	3.3444	
15 minute summer	S24	12	84.628	0.309	157.9	0.5462	0.0000	OK	15 minute summer	1.009	S25	159.6	1.174	0.494	4.2124	
15 minute summer	S25	12	84.525	0.275	159.6	0.4855	0.0000	OK	15 minute summer	1.010	S26-HW	165.6	1.692	0.537	1.2353	
15 minute summer	S26-HW	12	84.412	0.187	165.6	0.0000	0.0000	OK	15 minute summer	1.011	S18-HW	158.4	3.858	0.208	0.8574	
15 minute summer	S13	10	86.619	0.115	38.1	0.1296	0.0000	OK	15 minute summer	3.000	S14	37.1	1.536	0.299	1.3246	
15 minute summer	S14	11	85.847	0.102	42.2	0.1466	0.0000	OK	15 minute summer	3.001	S15	42.6	1.794	0.155	0.7960	
15 minute summer	S15	11	85.174	0.133	62.7	0.1910	0.0000	OK	15 minute summer	3.002	S16	63.2	1.650	0.184	1.8453	
15 minute summer	S16	11	84.584	0.163	72.5	0.2883	0.0000	OK	15 minute summer	3.003	S17-HW	72.7	1.267	0.206	2.1162	
15 minute summer	S17-HW	11	84.389	0.164	72.7	0.0000	0.0000	OK	15 minute summer	3.004	S18-HW	72.9	2.293	0.152	1.7323	
15 minute summer	S21	10	86.284	0.080	23.6	0.0909	0.0000	OK	15 minute summer	4.000	S22	23.4	1.893	0.255	0.2952	
15 minute summer	S22	10	85.471	0.081	40.7	0.0915	0.0000	OK	15 minute summer	4.001	S23-HW	40.5	2.716	0.151	0.2223	
720 minute summer	S23-HW	645	84.355	0.130	6.4	0.0000	0.0000	OK	720 minute summer	4.002	S18-HW	6.4	0.592	0.011	3.7035	
600 minute winter	S18-HW	570	84.353	0.353	34.7	346.6750	0.0000	OK	600 minute winter	1.012	S19-FC	11.5	0.204	0.029	2.9128	
720 minute summer	S19-FC	600	84.358	0.408	12.2	2.8850	0.0000	OK	720 minute summer	Hydro-Brake®	S20-OF	5.0				506.2
15 minute summer	S20-OF	1	83.800	0.000	4.5	0.0000	0.0000	OK								
15 minute summer	S28	1	86.975	0.000	0.0	0.0000	0.0000	OK	15 minute summer	5.000	S13	0.0	0.000	0.000	0.0572	
15 minute summer	S29	1	87.375	0.000	0.0	0.0000	0.0000	OK	15 minute summer	6.000	S11	0.0	0.000	0.000	0.1816	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.74%																
Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link Event (Upstream Depth)	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S1	11	87.403	0.153	38.9	0.1736	0.0000	OK	15 minute summer	1.000	S2	37.9	1.336	0.787	1.8181	
15 minute summer	S2	11	86.771	0.146	49.4	0.1649	0.0000	OK	15 minute summer	1.001	S3	49.6	1.547	0.414	0.5271	
15 minute summer	S3	11	86.432	0.148	64.7	0.2115	0.0000	OK	15 minute summer	1.002	S4	64.9	1.263	0.200	0.9617	
15 minute summer	S4	11	86.271	0.176	98.1	0.2523	0.0000	OK	15 minute summer	1.003	S6	98.4	1.780	0.282	1.2049	
15 minute summer	S11	10	87.238	0.262	48.5	0.2964	0.0000	SURCHARGED	15 minute summer	2.000	S12	47.3	1.210	1.181	0.6450	
15 minute summer	S12	10	86.747	0.100	64.6	0.1431	0.0000	OK	15 minute summer	2.001	S27	64.3	0.933	0.111	1.4317	
15 minute summer	S27	11	86.306	0.306	148.4	0.4378	0.0000	OK	15 minute summer	2.002	S6	146.9	1.375	0.761	4.6633	
15 minute summer	S6	11	86.010	0.242	287.5	0.4272	0.0000	OK	15 minute summer	1.004	S7	288.5	2.621	0.372	2.7425	
15 minute summer	S7	11	85.453	0.303	349.0	0.5351	0.0000	OK	15 minute summer	1.005	S8	349.9	2.562	0.461	3.4655	
15 minute summer	S8	11	85.267	0.682	356.3	1.2044	0.0000	SURCHARGED	15 minute summer	1.006	S9	355.0	1.275	0.497	4.0590	
15 minute summer	S9	11	85.188	0.758	375.2	1.3402	0.0000	SURCHARGED	15 minute summer	1.007	S10	375.4	1.333	1.222	9.3683	
15 minute summer	S10	11	85.045	0.682	396.4	1.2053	0.0000	SURCHARGED	15 minute summer	1.008	S24	398.8	1.416	1.309	6.2479	
15 minute summer	S24	11	84.923	0.604	431.4	1.0670	0.0000	SURCHARGED	15 minute summer	1.009	S25	430.2	1.625	1.332	8.1114	
15 minute summer	S25	12	84.734	0.484	430.2	0.8551	0.0000	OK	15 minute summer	1.010	S26-HW	479.4	2.449	1.556	2.3927	
960 minute winter	S26-HW	930	84.731	0.506	27.8	0.0000	0.0000	OK	960 minute winter	1.011	S18-HW	28.6	1.230	0.038	4.9326	
15 minute summer	S13	10	86.713	0.209	99.5	0.2366	0.0000	OK	15 minute summer	3.000	S14	97.1	1.924	0.781	2.7731	
15 minute summer	S14	11	85.920	0.175	110.8	0.2511	0.0000	OK	15 minute summer	3.001	S15	111.3	2.300	0.405	1.6232	
15 minute summer	S15	11	85.272	0.231	164.6	0.3300	0.0000	OK	15 minute summer	3.002	S16	165.6	2.111	0.481	3.7784	
960 minute winter	S16	945	84.731	0.310	12.4	0.5473	0.0000	OK	960 minute winter	3.003	S17-HW	12.4	0.750	0.035	6.3769	
960 minute winter	S17-HW	945	84.731	0.506	12.4	0.0000	0.0000	OK	960 minute winter	3.004	S18-HW	12.5	0.679	0.026	12.4214	
15 minute summer	S21	10	86.348	0.144	61.5	0.1632	0.0000	OK	15 minute summer	4.000	S22	61.0	2.377	0.665	0.6131	
15 minute summer	S22	10	85.528	0.138	106.2	0.1558	0.0000	OK	15 minute summer	4.001	S23-HW	105.9	3.490	0.393	0.4519	
960 minute winter	S23-HW	945	84.731	0.506	6.8	0.0000	0.0000	OK	960 minute winter	4.002	S18-HW	8.2	0.615	0.015	9.1446	
960 minute winter	S18-HW	945	84.731	0.731	47.5	787.1476	0.0000	SURCHARGED	960 minute winter	1.012	S19-FC	5.6	0.199	0.014	4.3618	
960 minute winter	S19-FC	945	84.731	0.781	5.6	5.5193	0.0000	SURCHARGED	960 minute winter	Hydro-Brake®	S20-OF	5.1				653.3
15 minute summer	S20-OF	1	83.800	0.000	5.0	0.0000	0.0000	OK								
15 minute summer	S28	1	86.975	0.000	0.0	0.0000	0.0000	OK	15 minute summer	5.000	S13	0.0	0.000	0.000	0.3012	
15 minute summer	S29	1	87.375	0.000	0.0	0.0000	0.0000	OK	15 minute summer	6.000	S11	0.0	0.000	0.000	0.3649	

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.74%																
Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link Event (Upstream Depth)	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S1	12	88.271	1.021	71.5	1.1547	0.0000	SURCHARGED	15 minute summer	1.000	S2	61.7	1.552	1.282	2.5510	
15 minute summer	S2	12	87.273	0.648	83.7	0.7334	0.0000	SURCHARGED	15 minute summer	1.001	S3	87.0	1.671	0.726	1.1580	
15 minute summer	S3	12	87.143	0.859	115.1	1.2298	0.0000	SURCHARGED	15 minute summer	1.002	S4	121.4	1.298	0.374	2.9638	
15 minute summer	S4	12	87.110	1.015	159.6	1.4521	0.0000	SURCHARGED	15 minute summer	1.003	S6	164.3	1.708	0.472	3.4419	
15 minute summer	S11	12	87.857	0.881	89.2	0.9965	0.0000	SURCHARGED	15 minute summer	2.000	S12	83.6	2.101	2.086	0.6927	
15 minute summer	S12	11	87.357	0.710	115.3	1.0157	0.0000	SURCHARGED	15 minute summer	2.001	S27	127.5	1.007	0.220	3.2234	
15 minute summer	S27	11	87.340	1.340	247.0	1.9170	0.0000	SURCHARGED	15 minute summer	2.002	S6	244.2	1.541	1.265	6.9175	
15 minute summer	S6	11	87.032	1.264	470.0	2.2341	0.0000	SURCHARGED	15 minute summer	1.004	S7	468.8	2.596	0.605	5.2429	
15 minute summer	S7	11	86.685	1.535	572.4	2.7122	0.0000	FLOOD RISK	15 minute summer	1.005	S8	566.0	2.620	0.746	4.3401	
15 minute summer	S8	12	86.239	1.654	577.8	2.9227	0.0000	FLOOD RISK	15 minute summer	1.006	S9	578.7	2.055	0.810	4.0590	
15 minute summer	S9	12	86.032	1.602	610.4	2.8313	0.0000	FLOOD RISK	15 minute summer	1.007	S10	612.5	2.175	1.995	9.3683	
15 minute summer	S10	12	85.654	1.291	644.8	2.2805	0.0000	SURCHARGED	15 minute summer	1.008	S24	646.8	2.297	2.123	6.2490	
2160 minute winter	S24	2100	85.451	1.132	28.9	1.9994	0.0000	SURCHARGED	2160 minute winter	1.009	S25	27.0	0.577	0.083	8.7230	
2160 minute winter	S25	2100	85.449	1.199	27.0	2.1186	0.0000	SURCHARGED	2160 minute winter	1.010	S26-HW	36.1	0.771	0.117	3.4711	
2160 minute winter	S26-HW	2100	85.448	1.223	36.4	0.0000	0.0000	SURCHARGED	2160 minute winter	1.011	S18-HW	29.6	1.016	0.039	5.1910	
15 minute summer	S13	11	87.612	1.108	182.6	1.2529	0.0000	SURCHARGED	15 minute summer	3.000	S14	175.2	2.488	1.410	3.8160	
15 minute summer	S14	11	86.002	0.257	199.6	0.3677	0.0000	OK	15 minute summer	3.001	S15	200.5	2.473	0.730	2.8155	
2160 minute winter	S15	2100	85.446	0.405	10.9	0.5798	0.0000	OK	2160 minute winter	3.002	S16	10.9	0.917	0.032	7.4371	
2160 minute winter	S16	2100	85.446	1.025	12.5	1.8116	0.0000	SURCHARGED	2160 minute winter	3.003	S17-HW	12.1	0.614	0.034	7.9634	
2160 minute winter	S17-HW	2100	85.446	1.221	12.1	0.0000	0.0000	SURCHARGED	2160 minute winter	3.004	S18-HW	11.9	0.532	0.025	13.0763	
15 minute summer	S21	10	86.958	0.754	112.9	0.8530	0.0000	SURCHARGED	15 minute summer	4.000	S22	110.3	2.774	1.202	0.9498	
15 minute summer	S22	10	85.594	0.204	193.3	0.2308	0.0000	OK	15 minute summer	4.001	S23-HW	192.6	3.976	0.716	0.7213	
2160 minute winter	S23-HW	2100	85.446	1.221	6.9	0.0000	0.0000	SURCHARGED	2160 minute winter	4.002	S18-HW	6.8	0.451	0.012	9.6260	
2160 minute winter	S18-HW	2100	85.446	1.446	47.8	1816.7190	0.0000	SURCHARGED	2160 minute winter	1.012	S19-FC	10.4	0.198	0.027	4.3618	
2160 minute winter	S19-FC	2100	85.446	1.496	10.4	10.5775	0.0000	SURCHARGED	2160 minute winter	Hydro-Brake®	S20-OF	5.1				985.6
15 minute summer	S20-OF	1	83.800	0.000	5.1	0.0000	0.0000	OK								
15 minute summer	S28	11	87.627	0.652	11.8	0.9333	0.0000	SURCHARGED	15 minute summer	5.000	S13	-11.8	-0.438	-0.178	0.9707	
15 minute summer	S29	12	87.870	0.495	9.8	0.7077	0.0000	SURCHARGED	15 minute summer	6.000	S11	17.4	0.529	0.227	0.7298	